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Remarks on the Group *Carolinæ* of the Genus *Rosa*.

BY G. N. BEST, M.D.

Notwithstanding the labor and thought that have been expended both at home and abroad on the Wild Roses of North America they are yet, at least as far as certain species are concerned, not in a very satisfactory condition to most botanists. One reason for this, as pointed out by M. Crepin,* is that many of the specimens found in the various herbaria are nearly worthless, consisting of a small branch, a few leaves and flowers, without mature fruit. To be available for diagnostic purposes, they should be the whole bush, the upper two-thirds at least, collected when flowering, with fruit later in the season.

Another reason is the variability of certain characters upon whose constancy too much reliance has been placed in the founding of species. Reference is here had to sepals, whether lobed or entire; stipules, whether narrow or dilated, toothed or entire; spines, whether straight, curved or absent. These in many instances are so variable as rather to be considered accidents of growth, depending apparently on peculiarities of soil or location, or both, and of value only in determining varieties. There is no plant perhaps that reflects more its environments than the Rose. Growing at the foot of a hill, in damp rich soil, with stout stems, thick shining leaves, broad stipules and stout curved or reflexed spines, they present a very different appearance from those found at the hill top, where the soil is light and dry, exposed to the sun. Here the stems are slender, branches more diffuse,

* *Nouvelles Remarques sur les Roses Americaines.*

leaves thinner, stipules narrow and spines straight, or nearly so, often absent in stunted bushes. Seeing the extremes in an herbarium, knowing nothing of the situation in which they grew, one would be strongly inclined to think he had two well-marked species with which to deal. On the other hand, however, could he but see the intermediate forms, their perfect intergradation, he could come to no other conclusion than that he had before him but one.

Hybridization may be invoked as a factor in the production of variant forms, but so far this is only conjectural. When these occur, as they frequently do, blending the characters of supposed species, that they are hybrids is an easy inference; and they may be so. The best presumptive evidence is sterility in otherwise healthy bushes. Watson, in his excellent monograph, *A History and Revision of the Roses of North America*,* speaking of *Rosa lucida*, Ehrh., says that the fruit is sometimes "oblong-ovate," but attributes this deformity, with fewer seeds, to the work of insects. Dr. Torrey, in *Flora of New York*, states that a similar change is observed at times in the fruit of *Rosa Carolina*, L., and also ascribes it to insect work. With due deference to these acute observers, I am disposed to ask whether it is not probable that the cause at the bottom is not sterility from hybridizing, the insects taking advantage of the space made vacant by the absence of seed, and thus appearing to be the cause when in reality they are not? I am led to this questioning by observing that most frequently this atypic form of hips is seen in bushes in which the characters of *Rosa lucida* and *Rosa Carolina* are blended. If this change depended *de novo* on the work of insects, like changes in other species growing in the same locality should be expected, which, however, is rarely the case.

The time of flowering is a valuable criterion whereby to judge whether different forms are in reality the same species or not. If they commence to bloom at the same time in the same situation, it is reasonable to suppose that they are the same. It is true that two or more good species might flower at exactly the same time, but the presumption is to the contrary. Caution therefore is

* Proceedings of the Amer. Acad. of Arts and Sciences, Vol. xx.

necessary in not too hastily concluding, when anthesis takes place simultaneously, that we have more than one species, however diverse the forms may appear.

The mature fruit has not received the attention it deserves; likewise the seed. I am satisfied that from them both important aids can be derived in the differentiation of species. In the early part of winter the hips of *Rosa Carolina* wither and wrinkle, forming a short but distinct neck; the remaining species of the group *Carolinæ*, on the other hand, so far as my observation goes, continue plump until the following spring. By this character alone, and especially when taken conjointly with the seed, which is smaller than in either of the other species, *Rosa Carolina* may be known even when divested of flowers and leaves. In like manner, as the result of close study, the fruit and seeds may afford the means of distinguishing other species and putting them on a more permanent basis.

These remarks are intended to be simply suggestive and the end attained for which they are made if they stimulate more earnest work on the part of botanists in solving some of the problems connected with the genus *Rosa*. In the same spirit I have thought proper to advise the dropping of *Rosa lucida*, Ehrh., as a species, and placing it under *R. humilis*, Marshall, as a variety. They commence flowering at the same time; intermediate forms occur that connect them so closely that among a large number of specimens it is well nigh impossible to know to which species some should be assigned. They differ only in a few variable characters which are far from being constant. It is therefore presumed that the best interests of the science are subserved by putting them together. By this arrangement all those forms which show a transition to *Rosa Carolina*, L., and yet in reality are distinct from it, are placed under *R. humilis*, to which they are more closely related.

There is another form found growing on the margins of damp woods, or in the clearings, which in some respects seems intermediate between *Rosa humilis* and *R. nitida*, Willd. This I have also placed under the former as var. *villosa*. It remains for future observation to assign its limits; it is not infrequent in New Jersey.

That the descriptions of Ehrhart's *lucida* and Marshall's *humilis* have been generously dealt with is evident from a perusal of the current text books and manuals. The multiplicity of forms have been disposed of after a Procrustean fashion. In order, therefore, that the reader may understand what is proposed, the leading characters of the Group will be given, followed by those of the species with its varieties, for much of which I am largely indebted to M. Crepin* and Dr. Watson.†

GROUP CAROLINÆ : STYLES DISTINCT ; STEMS WITH INFRASTIPULAR SPINES, OFTEN PRICKLY ; SEPALs DECIDUOUS ; CALYX, RECEPTACLE AND PEDICEL HISPID ; FRUIT GLOBOSE.

Leaflets five to nine, coarsely toothed; fruit remaining plump during winter.

Rosa humilis, Marshall. Stems usually low (1 to 3 ft.), rather slender, with straight slender spines, spreading or sometimes reflexed; stipules narrow, rarely dilated; leaflets usually thin, sometimes glabrous, but commonly more or less pubescent, as also the rachis; flowers corymbose or often solitary; sepals lobed; fruit depressed globose, reddish. (*R. parviflora*, Ehrh.)

Var. LUCIDA, n. v. Stems taller, with stout, curved or reflexed spines, rarely straight; stipules usually dilated, sometimes rounded, margins serrulate or more deeply toothed; leaflets thicker, smooth and shining above, more or less pubescent beneath; sepals slightly lobed or entire; fruit dark red. (*R. lucida*, Ehrh., in part.)

Var. VILLOSA, n. v. Stems low, seldom over 2 ft. high, upper third zigzag, often greenish; stem and branches covered with brownish prickles much shorter than the usually straight spines; leaflets thick, smooth and shining above, villous-pubescent beneath; rachis pubescent, slightly glandular, its nodes surrounded by villous tufts; stipules narrow, margins glandular-ciliate; sepals long, often foliaceous, pinnately lobed; fruit yellowish red. ‡

* *Primitiæ Monographiæ Rosarum*.

† *loc. cit.*

‡ Var. *villosa* is usually well-marked, but forms occur which show a reversion to the type, with thinner leaves, less villous, less glandular, prickles few or absent, spines often elongated.